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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:	Appeal No.
Pierre HOLZSCHUH et al.	Conf. 2245
Application No. 10/765,123	Group 1794
Filed January 28, 2004	Examiner Kelly Jo Bekker

PROCESS FOR THE PRODUCTION OF ALIMENTARY SMOKE BY PYROLYSIS, THE USE OF MEANS PARTICULARLY ADAPTED TO SAID PROCESS, SMOKE AND SMOKED FOODSTUFFS OBTAINED

REPLY BRIEF

MAY IT PLEASE YOUR HONORS: January 12, 2009

The Examiner's Answer of November 11, 2008 withdraws the indefiniteness rejection of claim 21 and withdraws the prior art rejection of claim 19 based on GRUHL. The remaining rejections are thus the rejection of all claims for obviousness based on UNDERWOOD in view of various secondary references and the rejection of claims 1, 17 and 18 for obviousness based on GRUHL in view of a secondary reference.

As to these remaining rejections, the Examiner's Answer includes a new interpretation of the applied prior art, new proposed motivation for combining the applied prior art, and takes a position for the first time as to how certain of the claimed steps are allegedly taught by the applied prior art, as will be discussed herein.

Rejection of all claims for obviousness based on UNDERWOOD, LEPEZ, WEISSMAN and WISTREICH

As noted in Appellants' main brief, the final rejection did not address the claim 1 recitation of "removing the consumed organic material and recovering the produced smoke from the other end of the at least one said screw." The Examiner's Answer now seeks to do so, in the statement on p. 7 thereof that:

> "The heated endless rotatable screw as taught by UNDERWOOD in view of WEISMANN and LEPEZ would supply calories to elevate the temperature of the organic material and move the organic material by rotation through the heatable chamber. The organic material would be introduced at one end of the reactor or screw and removed at the end of the reactor as taught by UNDERWOOD (Column 8 lines 50-53, Column 9 lines 3-7 and Figure 1 items #6 and #25). Furthermore, one would have been motivated to insert the material to be reacted at the beginning of the reactor, i.e. the screw, and recover the material at the end of the reactor, i.e. the screw, so that the material would be fully reacted."

However, the sections of the UNDERWOOD apparatus to which the Examiner refers are (i) the heating reactor (Column 8 lines 50-53 of UNDERWOOD), (ii) the condenser (25) and precipitator (24) (Column 9 lines 3-7 and Figure 1 item #25), and (iii) the hopper which holds the material prior to processing (Figure 1, item #6). Only the heating reactor of UNDERWOOD is comparable to the claimed process, such that the reference to the downstream condenser and precipitator and the upstream hopper is not understood.

As to the heating reactor, UNDERWOOD illustrates the rapid thermal processing apparatus in Figure 1. The

apparatus requires a reactor (1) for heating feeds into a transport reactor (9), which also provides heat, a quencher (2), which quenches products with liquid nitrogen to reduce secondary reactions, a solid separator (23), which removes the solids from the gases and recovers the gas/vapour product, and a condenser (25) to increase the yield of recovered liquid products in addition to a precipitator (24). See, e.g., Column 8, lines 4-62.

Accordingly, it is unclear whether the Examiner's new position proposes utilizing the WIESMANN and/or LEPEZ devices for one or both heating steps and/or the quenching step and/or the removing solids steps; however, in no case would the claimed invention result.

That is, if the new position involves substituting the device of WIESMANN and/or LEPEZ for one or both of the devices in the heating steps of UNDERWOOD, then the proposed substitution would fail to teach the claimed invention. That is, the quenching step, followed by a solids removing step, occurs after the heating step. Thus, a step of removing solids and recovering product smoke would not occur at the end of the screw performing the heating step, but rather after the quencher performing the quenching step.

If the proposed modification, however, is for the substitution of the device of WIESMANN and/or LEPEZ for one or both of the devices used in heating steps of UNDERWOOD,

the quencher, and the solids separators, then the proposed substitution would render the apparatus, and method, of UNDERWOOD unsatisfactory for the intended purpose. That is, quenching with liquid nitrogen is required by UNDERWOOD to reduce secondary reactions prior to removing solids and/or recovering the produced smoke.

The Examiner's Answer also now interprets the heating temperature of UNDERWOOD and that of claim 1 to overlap at 400°C. The Examiner then proceeds to attempt to provide new motivation for selecting a temperature less than 400°C for heating the material of UNDERWOOD (at the top of page 6 of the Examiner's Answer):

> Furthermore, to adjust the pyrolysis temperature such a small amount, i.e. from 400C to 399.9C, would have been obvious and routine determination of one of ordinary skill in the art at the time the invention was made based upon the specific material being pyrolyzed and the optimal operating conditions. Slight temperature adjustments in processing were routine and as such, a temperature adjustment of less than 1C would not impart a patentable distinction to the claims in the absence of criticality or unexpected results.

However, the new interpretation and motivation do not render obvious this aspect of the claims on appeal.

The purpose of UNDERWOOD is to achieve fast or flash pyrolysis processes that achieve very high temperatures at a minimum amount of time. These fast or flash pyrolysis methods are performed above 400°C.

For example, UNDERWOOD describes three methods. A first method is via vacuum pyrolysis, operated at 450°C for

up to 2 seconds produces total liquid yields between 68 and 74%. A second method is flash pyrolysis using a fluidized bed at a temperature between 400°C and 650°C for a residence time of up to 3.0 seconds produces liquid yields between 60% and 70%. A third method, rapid thermal processing, heats the material to 600°C to 650°C for up to 3.0 seconds produces maximum gas yields of 90%. See, e.g., column 6, lines 35-64 and 57-67, Column 7, lines 6-18 and 26-37.

Thus, a temperature lower than 400°C would be contrary to the methods disclosed by UNDERWOOD.

The Examiner's Answer, in attempting to supply the missing rationale as to why the claims on appeal would have been obvious based on UNDERWOOD, thus serves more to underscore the impropriety of that rejection, for the reasons discussed above.

Rejection of claims 1, 17, and 18 for obviousness based on GRUHL and LEPEZ

The Examiner's Answers takes a new position as to the applicability of this rejection to the claim requirements for introducing material at one end of the screw, and removing consumed material and recovering smoke at the other end of the screw:

> Specifically regarding the organic material as introduced at one end of the screw and recovered at the other end of the screw, one of ordinary skill in the art at the time the invention was made would expect that Gruel inherently teaches of inserting material to be reacted at the beginning of a reactor, i.e. the screw, and recovering the material at the end of the reactor, i.e. the screw. Furthermore, one would have been motivated to insert the material to be reacted at the beginning of a reactor, i.e. the screw, and recover the material at the end of the reactor, i.e. the screw, so that the material would be fully reacted.

However, GRUHL simply does not teach, "inherently" or otherwise, recovering produced smoke and removing the consumed organic material from the same end of the screw, i.e., the other end from where the material is introduced.

GRUHL is focused on obtaining a catalyst by pyrolysis. GRUHL discloses that volatile products which accumulate during the pyrolysis process are removed and may be burnt to recovery energy. In Example 1, GRUHL also notes that the pyrolysis product material is discharged, and pyrolysis gases are burnt. See, e.g., column 2, lines 16-25 and Example 1(a). However, because the desired product of GRUHL is the solid catalyst rather than the volatile gases, it is by no means inherent that the byproduct volatile gases of GRUHL would necessarily be recovered at the downstream end of the screw - to the extent that they are "recovered" at all.

Thus, GRUHL is silent as to where the volatile product are removed, e.g., relative to the screw, GRUHL teaches away from "recovering" the produced smoke, as

volatiles are simply removed or burned. LEPEZ does not remedy this shortcoming of GRUHL.

Thus, this aspect of the claims on appeal is not obvious from these references.

Conclusion

The above discussion is believed to underscore that the remaining rejections of the claims on appeal are improper and should be reversed. Such action is accordingly respectfully requested.

Respectfully submitted,

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